

IMPORTANT:
Refer to www.extron.com for the complete user manual and installation instructions before connecting the product to the power source.

DMS 1600

DMS 3600

Configurable Digital Video Matrix Switchers



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Precautions

Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

- Read Instructions** • Read and understand all safety and operating instructions before using the equipment.
- Retain Instructions** • The safety instructions should be kept for future reference.
- Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.
- Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

- Lire les instructions** • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.
- Conservier les instructions** • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.
- Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.
- Eviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

- Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.
- Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.
- Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.
- Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaución

- Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.
- Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.
- Obedecer las advertencias** • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.
- Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

Warning

- Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.
- Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).
- Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.
- Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.
- Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.
- Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avertissement

- Alimentations** • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.
- Déconnexion de l'alimentation** • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.
- Protection du cordon d'alimentation** • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.
- Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.
- Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.
- Lithium Batterie** • Il a danger d'explosion s'il y a un remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un ype équivalent recommande par le constructeur. Mettre au reut les batteries usagées conformément aux instructions du fabricant.

Vorsicht

- Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.
- Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.
- Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.
- Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder anderer Gefahren bestehen.
- Schlitze und Öffnungen** • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.
- Lithium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

- Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puntearla ni eliminarla.
- Desconexión de alimentación eléctrica** • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.
- Protección del cables de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.
- Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.
- Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/al alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.
- Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desacar las baterías usadas siguiendo las instrucciones del fabricante.

Extron® Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:
Extron USA
1001 East Ball Road
Anaheim, CA 92805
U.S.A.

Europe, Africa, and the Middle East:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

Asia:
Extron Asia
135 Joo Seng Road #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Japan:
Extron Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Middle East:
Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or modifications to the product that were not authorized by Extron.

NOTE: If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

安全须知 • 中文



这个符号提示用户该设备用户手册中有重要的操作和维护说明。



这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。设备必须使用有地线的供电系统供电。第三条线（地线）是安全设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线，避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Front Panel Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Front Panel Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance with FCC emissions limits.

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Introduction

This section gives an overview of the DMS 1600 and DMS 3600 and describes their features. Topics that are covered include:

- [About this Guide](#)
- [About the DMS 1600 and DMS 3600](#)

About this Guide

- NOTES:**
- For more information on any subject in this guide, see the *DMS 1600 and DMS 3600 User Guide*, available on the Extron DVD or at www.extron.com.
 - Throughout this guide, both products are referred to as "DMS matrix switchers" unless a significant difference is noted in their features or operation.

This setup guide helps you to easily and quickly set up and configure your Extron DMS 1600 and DMS 3600 switcher. Step by step instructions show you how to:

- [Connect the hardware](#)
- [Perform basic operations](#)
- Use both the [front panel controls](#) and [selected Simple Instruction Set \(SIS™\) commands](#)
- [Load and start the Matrix Switchers Control Program](#)
- [Connect to the built-in HTML pages](#), which you can use to operate the switcher
- Replace the [input/output \(I/O\) boards](#), [power supplies](#), and [fans](#)

About the DMS 1600 and DMS 3600

The DMS 1600 and DMS 3600 (see figure 1) are configurable matrix switchers that distribute DVI signals. I/O boards route signals that are compatible with all Extron DVI video product lines. The matrix switcher routes any input signal to any combination of outputs. The matrix switcher can route multiple input/output configurations simultaneously.

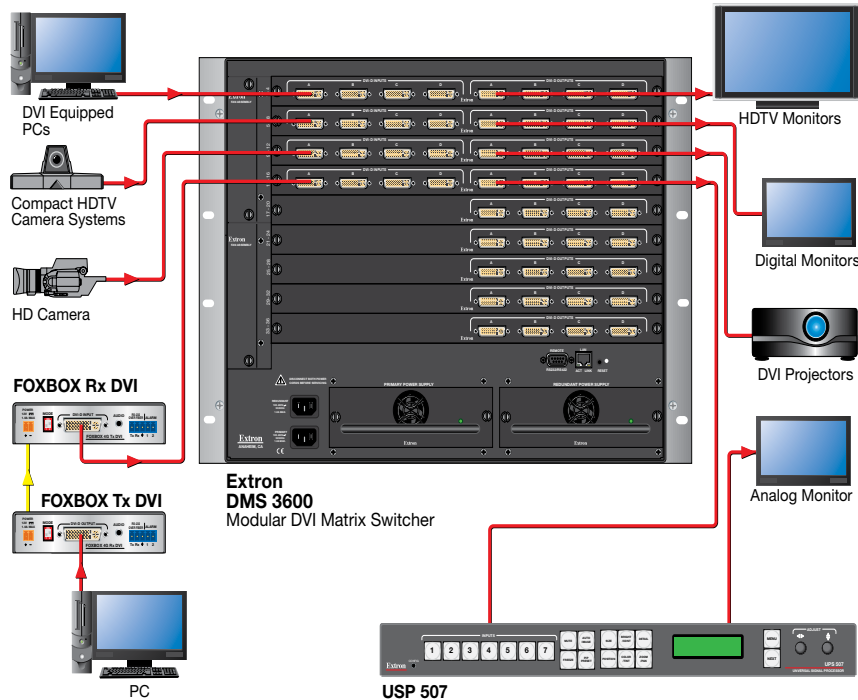


Figure 1. Typical DMS 1600 Application

The matrix switcher can be remotely controlled via its Ethernet LAN port, a serial port, or a USB port using either the Windows-based Extron Matrix Switchers Control Program or the SIS.

The switcher has two internal, hot-swappable 100 VAC to 240 VAC, 50-60 Hz, 175-watt power supplies that provide worldwide power compatibility and reliability.

Configurability

The DMS 1600 and DMS 3600 are assembled from I/O boards.

- The DMS 1600 can include up to four I/O boards.
- The DMS 3600 can include up to nine I/O boards.

There are three types of I/O boards available:

- 4x4 DVI input and output board
- 4 DVI input board
- 4 DVI output board

By adding or removing I/O boards within certain rules that are detailed in "[Configurability rules](#)", below, you can expand and contract the DMS 1600 and DMS 3600 from a 4-input by 4-output matrix to up to:

- **DMS Matrix 1600** — A 16-input by 16-output matrix
- **DMS Matrix 3600** — A 36-input by 36-output matrix

Configurability rules

There are certain rules for configuring the DMS matrix switcher for proper operation, as detailed below:

- The top slot (slot 1) **MUST** contain a 4x4 DVI input and output board.
- The next slot (slot 2) can contain any of the three board types (a 4x4 DVI input and output board, a 4 DVI input board, or a 4 DVI output board).
- A 4x4 DVI input and output board can be followed (in the slot directly underneath it) by any of the board types.
- After you insert a 4 DVI input board or a 4 DVI output board, all active boards underneath it **MUST** be the same type.
- If you install a blank panel, all slots under it **MUST** contain blank panels (you cannot skip a slot).

Installation

This section describes installation of the DMS matrix switchers, including connections and features. Topics that are covered include:

- [Rear Panel](#)
- [Front Panel](#)

Rear Panel

A Note on I/O Boards

See figure 2. Each I/O board is identified by the input and output connector numbers supported by the board position. The input and output numbers on the boards are identified as locations A through D.

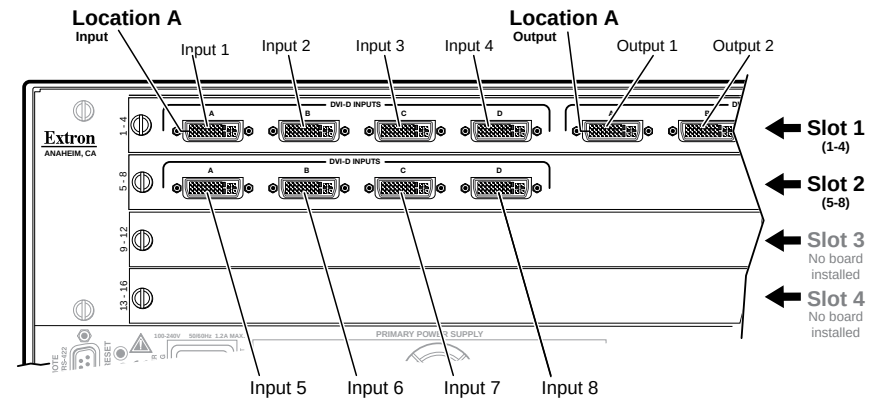


Figure 2. Arrangement of Inputs and Outputs on the I/O boards

The board position designators correspond to the input and output numbers served by that position (1 through 4, 5 through 8, and so on).

The location designators, A through D, correspond to the DVI input or output, grouped with inputs on the left and outputs on the right and numbered from left to right.

The input numbers supported by the I/O board in locations 5 through 8 are as follows: A = 5, B = 6, C = 7, D = 8.

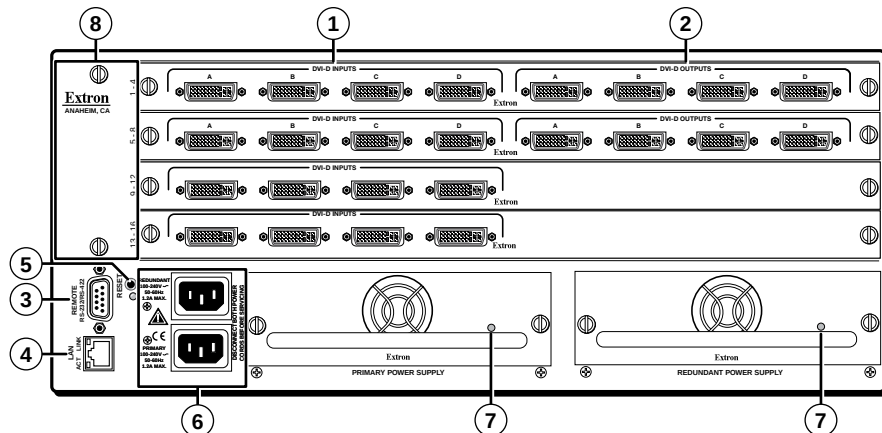


Figure 3. DMS 1600 Switcher Rear Panel

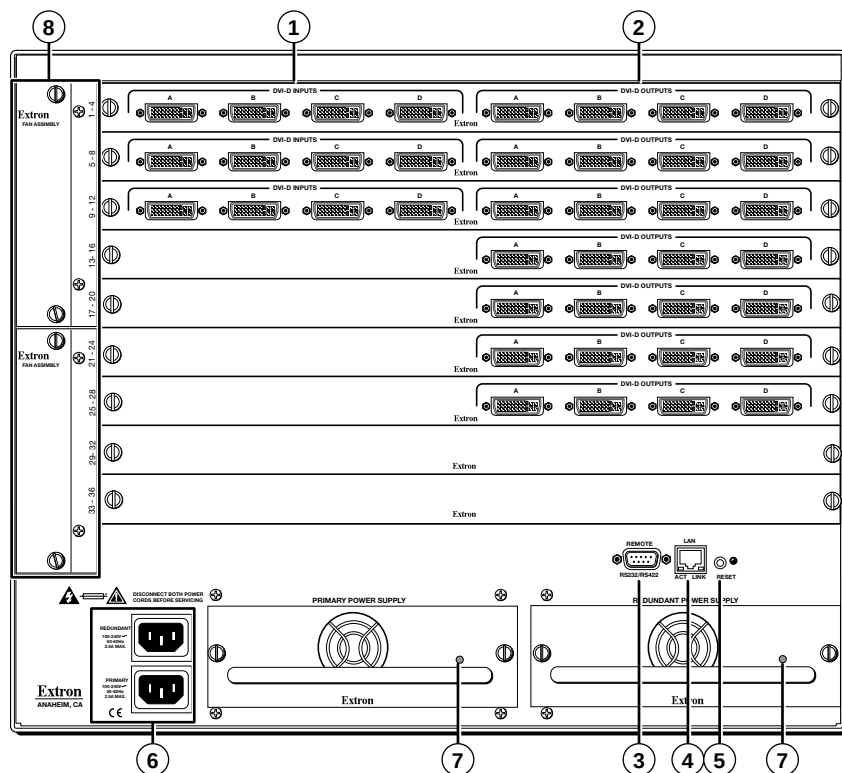


Figure 4. DMS 3600 Switcher Rear Panel

Making Connections

- ① **DVI-I Input connectors** — Connect DVI cables between these ports and the DVI output ports of the digital video sources.
- ② **DVI-I Output connectors** — Connect DVI displays for the routed direct digital image.
- ③ **Remote port** — If desired, connect a control system or computer to the rear panel Remote RS-232/RS-422 port.

Pin	RS-232	Function	RS-422	Function
1	—	Not used	—	Not used
2	Tx	Transmit	Tx-	Transmit (-)
3	Rx	Receive	Rx-	Receive (-)
4	—	Not used	—	Not used
5	Gnd	Ground	Gnd	Ground
6	—	Not used	—	Not used
7	—	Not used	Rx+	Receive (+)
8	—	Not used	Tx+	Transmit (+)
9	—	Not used	—	Not used

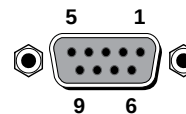


Figure 5. Remote RS-232/RS-422 Output Connector Wiring

- ④ **Ethernet port (LAN connector)** — If desired, connect a network WAN or LAN hub, a control system, or a computer to the Ethernet RJ-45 port.

Network connection — Wire as a patch (straight-through) cable.

Computer or control system connection — Wire the interface cable as a crossover cable.

NOTE: The factory default IP address is 192.168.254.254.

- ⑤ **Reset button** — Initiates four levels of reset of the matrix switcher. For different reset levels, press and hold the recessed button while the switcher is running or while you power up the switcher. See the *DMS 1600 and DMS 3600 User Guide*, available on the Extron DVD or at www.extron.com.
- ⑥ **Power connectors** — Plug the switcher into two grounded AC sources.

NOTE: For reliability, connect the power cord from the Redundant power connector to either an uninterruptible power source or to a power source that is completely independent of the primary power source.

- ⑦ **Primary and Redundant power supply indicator LEDs** —
 - Green** — Indicates that the associated power supply is operating within normal tolerances.
 - Red** — Indicates that the associated power supply is operating outside the normal tolerances or has failed. See "[Removing and Installing a Power Supply Module](#)" to replace the power supply.
- ⑧ **Fans** — See "[Removing and Installing a Fan](#)".

Front Panel

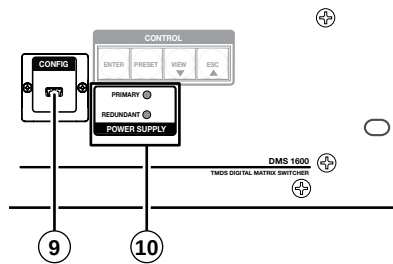


Figure 6. Front Panel Features

- ⑨ **Configuration port** — If desired, connect a control system or computer to the front panel Configuration port, a mini USB B port.
- ⑩ **Primary and Redundant Power Supply LEDs** —

NOTE: The meaning of these indicators is identical to the LEDs on the power supplies (item ⑦).

Green — Indicates that the associated power supply is operating within normal tolerances.

Red — Indicates that the associated power supply is operating outside the normal tolerances or has failed. See "[Removing and Installing a Fan](#)" to replace the power supply.

Front Panel Operations

This section describes simple DMS matrix switcher operation from the front panel. Topics that are covered include:

- [Creating a Tie](#)
- [Viewing Ties \(and Muting Outputs\)](#)
- [Saving or Recalling a Preset](#)
- [Locking Out the Front Panel \(Executive Mode\)](#)

Creating a Tie

1. Press and release the Esc button to clear any input button, output button, or control button indicators that may be lit.

2. Press and release the desired input button.

The button lights to indicate the selection.



3. Press and release the desired output buttons.

The output buttons blink to indicate the potential ties.



The Enter button blinks to indicate the need to confirm the change.

4. Press and release the Enter button. All button indicators turn off.

See [figure 2](#) in the "Installation" section. The input numbers supported by the I/O board in locations 5 through 8 are as follows: A = 5, B = 6, C = 7, D = 8.)

Viewing Ties (and Muting Outputs)

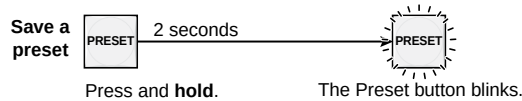
1. Press the View button. Output buttons light for outputs that have no ties established.

NOTE: If an output button blinks, that output is muted. To toggle mute on and off, press and hold the output button for 2 seconds.

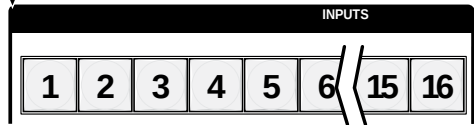
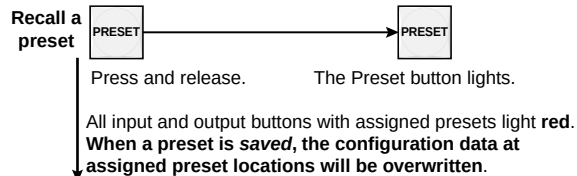
2. Press an input button. The buttons for all tied outputs light.
3. Press an output button. The buttons for the tied input and all tied outputs light.
4. Press the View button again to exit View mode. All input and output buttons return to an unlit state.

Saving or Recalling a Preset

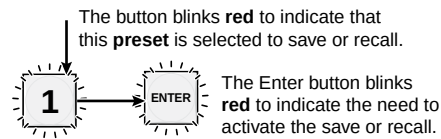
1. Save a preset — Press and hold the Preset button until it flashes.



- Recall a preset** — Press and release the Preset button.



2. Press and release the desired input or output button.

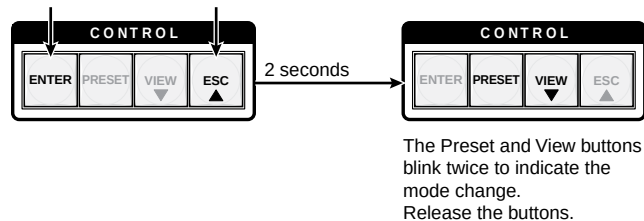


3. Press and release the Enter button.

Locking Out the Front Panel (Executive Mode)

To toggle the lock on and off, simultaneously press and hold the Enter button and the Esc button until the Preset and View buttons blink twice (approximately 2 seconds).

Press and hold the Enter and Esc buttons simultaneously to toggle executive mode on or off.



Remote Control

This section describes using the remote control features of the DMS matrix switchers to control the devices. Topics that are covered include:

- [Selected SIS Commands](#)
- [Installing and Starting the Control Program](#)
- [Accessing the HTML Pages](#)

Selected SIS Commands

You can use Simple Instruction Set (SIS) commands for operation and configuration of the switchers. You can run these commands from a PC connected to a serial port ([item ③](#) on page 7), Ethernet port ([item ④](#) on page 7), or USB port ([item ⑤](#) on page 8) on the switcher.

Establishing a Network (Ethernet) Connection

NOTE: The first time you connect to the switcher via the LAN port, you may need to change the default settings (IP address, subnet mask, and [optional] administrator name and password) of the controller (see "[Configuring for Network Communication](#)").

Establish a network connection as follows:

1. Open a TCP socket to port 23 using the IP address of the switcher.

NOTE: The factory default IP address is 192.168.254.254.

The switcher responds with a copyright message including the name, firmware version, and part number of the product, and the current date and time.

NOTES:

- If the switcher is not password-protected, the device is now ready to accept SIS commands.
- If the switcher is password-protected, a password prompt appears.

2. If necessary, enter the appropriate password.

If the password is accepted, the switcher responds with Login User or Login Administrator.

If the password is not accepted, the Password prompt reappears.

Connection timeouts

The Ethernet link times out and disconnects after a designated period of time of no communications. By default, this timeout value is set to 5 minutes but the value can be changed (see the "[Configure port timeout SIS command](#)" on page 17.)

NOTE: Extron recommends leaving the default timeout at 5 minutes and periodically issuing the Query (Q) command to keep the connection active or disconnecting the socket and reopening the connection when necessary.

Number of connections

A switcher can have up to 200 simultaneous TCP connections, including all HTTP sockets and Telnet connections. When the connection limit is reached, the switcher accepts no new connections until some have been closed. No error message or indication is given that the connection limit has been reached. To maximize the performance of your switcher, keep the number of connections low and close unnecessary open sockets.

Verbose mode

Telnet connections to a switcher can be used to monitor for changes that occur on the switcher, such as front panel operations and SIS commands from other Telnet sockets or a serial port. For a Telnet session to receive change notices from the switcher, the Telnet session must be in verbose mode 1 or 3 (see the "[Set verbose mode SIS command](#)" on page 17.) In verbose mode 3, the Telnet socket reports changes using messages that resemble SIS command responses.

Establishing a USB Port Connection

A standard USB cable and the Extron DataViewer utility, version 2.0 or newer, can be used for connection to the DMS switcher Configuration port. The USB cable, available at any local electronics store, should be terminated on one end with a mini USB B male connector

NOTE: Before you use the USB port for the first time, install the USB driver on your computer. The simplest way to do this is to install version 8.0 or newer of the Matrix Switchers Control Program and then run the Found New Hardware Wizard (see "[Installing the Program](#)" and "[First-time Connection Considerations](#)".)

Host-to-Switcher instructions

The switcher accepts SIS commands through its serial port, its USB port, or its LAN port. SIS commands consist of one or more characters per command field. They do not require any special characters to begin or end the command character sequence. Each switcher response to an SIS command ends with a carriage return and a line feed (CR/LF = **↵**), which signals the end of the response character string. A string is one or more characters.

NOTE: The table that begins on the next page is a partial list of SIS commands. For a complete listing, see the *DMS 1600 and DMS 3600 User Guide*.

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
Create ties			
NOTES: - Commands can be entered back-to-back in a string, with no spaces. For example: 1*1!02*02&003*003%. - The matrix switchers support 1-, 2-, and 3-digit numeric entries (1*1!, 02*02&, or 003*003%). - The ! tie command, the & tie command, and the % tie command can be used interchangeably. - The ! read tie command, & read tie command, and the % read tie command can be used interchangeably.			
Tie input <u>X1</u> to output <u>X2</u> Example (see Notes, above):	<u>X1</u> * <u>X2</u> ! 1*3!	Out <u>X2</u> •In <u>X1</u> •All← Out03•In01•All←	Tie input <u>X1</u> to output <u>X2</u> . Tie input 1 to output 3.
Tie input <u>X1</u> to output <u>X2</u> Example (see Notes, above):	<u>X1</u> * <u>X2</u> & 10*4&	Out <u>X2</u> •In <u>X1</u> •RGB← Out04•In10•RGB←	Tie input <u>X1</u> to output <u>X2</u> . Tie input 10 to output 4.
Tie input <u>X1</u> to output <u>X2</u> Example (see Notes, above):	<u>X1</u> * <u>X2</u> % 7*5%	Out <u>X2</u> •In <u>X1</u> •Vid← Out05•In07•Vid←	Tie input <u>X1</u> to output <u>X2</u> . Tie input 7 to output 5.
Read output tie	<u>X2</u> &	<u>X1</u> ←	Input <u>X1</u> is tied to output <u>X2</u> .
Read output tie	<u>X2</u> %	<u>X1</u> ←	Input <u>X1</u> is tied to output <u>X2</u> .
Read output tie	<u>X2</u> !	<u>X1</u> ←	Input <u>X1</u> is tied to output <u>X2</u> .
NOTE: <u>X1</u> = Input number 00 – maximum number of inputs for your configuration (00 = untied) <u>X2</u> = Output number 01 – maximum number of outputs for your configuration			

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
Channel mute commands			
Channel mute	<u>X2</u> *1B	Vmt <u>X2</u> *1←	Mute output <u>X2</u> (no signal is output).
Channel unmute	<u>X2</u> *0B	Vmt <u>X2</u> *0←	Unmute output <u>X2</u> (signal is output).
Read channel mute	<u>X2</u> B	<u>X3</u> ←	1 = mute on, 0 = mute off.
Global channel mute	1*B	Vmt1←	Mute all outputs.
Global channel unmute	0*B	Vmt0←	Unmute all outputs.
View output mutes	Esc\VM←	<u>X3</u> ¹ <u>X3</u> ² ... <u>X3</u> ⁿ ←	Each <u>X3</u> response is the mute status of an output, starting from output 1. n = the maximum number of outputs for your configuration.
Save and recall presets			
NOTE: If you try to recall a preset that is not saved, the matrix switcher responds with the error code E11.			
Save current configuration as a global preset Example:	<u>X4</u> , 9,	Spr <u>X4</u> ← Spr09←	Command character is a comma. Save current ties as preset 9.
Recall a global preset Example:	<u>X4</u> . 5.	Rpr <u>X4</u> ← Rpr05←	Command character is a period. Recall preset 5, which becomes the current configuration.
NOTE: <u>X2</u> = Output number 01 – maximum number of outputs for your model <u>X3</u> = Mute status 0 = not muted, 1 = muted <u>X4</u> = Global preset number 01 – 32			

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
Information requests			
Information request	I	V[X5]X[X6]•A[X5]X[X6]•S[X7] ¹ X[X7] ² ...[X7] ⁿ ↵	In the response: V[X5]X[X6] shows the number of available inputs and outputs for this configuration. A[X5]X[X6] has no meaning for this product. S[X7]¹X[X7]²...[X7]ⁿ shows the board type installed in each slot. <i>n</i> is the highest numbered board in your system, 4 or 9. See the <i>DMS 1600 and DMS 3600 User Guide</i> for part numbers. <i>n</i> is the highest numbered board in your system, 4 or 9
Request part number	N	[X8]↵	
Request part number and board configuration	*N	[X8].[X7] ¹ X[X7] ² X[X7] ³ ...[X7] ⁿ ↵	
Query controller firmware version	Q	[X9]↵	
Example:	Q	1.23↵	The factory-installed controller firmware version is 1.23 (sample value only).

NOTE: [X5] = Inputs Total number of inputs for this switcher
[X6] = Outputs Total number of outputs for this switcher
[X7] = Board installed X0 = No board installed C2 = 4 inputs by 0 outputs
 C1 = 4 inputs by 4 outputs C3 = 0 inputs by 4 outputs
[X8] = Part number 60-*nnnn-nn*
[X9] = Firmware version number to second decimal place (x.xx)

Command	ASCII Command (host to unit)	Response (unit to host)	Additional description
IP setup			
Set IP address	[Esc]X10CI↵	IpiX10↵	
Read IP address	[Esc]CI↵	X10↵	
Set subnet mask	[Esc]X10CS↵	IpsX10↵	
Read subnet mask	[Esc]CS↵	X10↵	
Set gateway IP address	[Esc]X10CG↵	IpgX10↵	
Read gateway IP address	[Esc]CG↵	X10↵	
Set DHCP on or off	[Esc]X11DH↵	IdhX11↵	
Read DHCP on/off status	[Esc]DH↵	X11↵	
Set verbose mode	[Esc]X12CV↵	VrbX12↵	
Read verbose mode	[Esc]CV↵	X12↵	
Configure current port timeout	[Esc]0*X13TC↵	Pti0*X13↵	
Read current port timeout	[Esc]0TC↵	X13↵	
Configure global IP port timeout	[Esc]1*X13TC↵	Pti1*X13↵	
Read global IP port timeout	[Esc]1TC↵	X13↵	

NOTE: [X10] = IP address *nnn.nnn.nnn.nnn*
[X11] = DHCP 0 = off, 1 = on
[X12] = Verbose mode 0 = clear or none (default for Telnet connection)
 1 = verbose mode (default for RS-232/RS-422 connection)
 2 = tagged responses for queries
 3 = verbose mode and tagged for queries
[X13] = Port timeout interval 1 (= 10 seconds) – 65000 (default is 30 = 300 seconds = 5 minutes)

Installing and Starting the Control Program

Another way to operate the switcher is via the Windows®-based Matrix Switchers Control Program. This program is contained on the Extron Software Products DVD (included with the switcher). Run this program on a PC connected to a serial port (item ③ on page 7), Ethernet port (item ④ on page 7), or USB port (item ⑤ on page 8) on the switcher. The program must be installed on a Windows-based computer and cannot be run from the DVD.

NOTE: For details on operating the program see the “Matrix Software” section in the *DMS 1600 and DMS 3600 User Guide*.

Installing the Program

NOTE: To run this program while your computer is connected to the Configuration (USB) port, use version 8.0 or newer of the Matrix Switchers Control Program.

1. Insert the DVD into the drive. The Extron software DVD window should appear automatically.



Figure 7. Software DVD Window

NOTE: If the window does not open automatically, run Launch.exe from the DVD.

2. Click the **Software** tab.
3. Scroll to the Matrix Switchers program and click **Install**.

- **Matrix Switchers**
RS-232 Windows
Control Program.

Figure 8. Select Matrix Switchers Program



4. Follow the on-screen instructions. The installation program creates a C:\Program Files\Extron\Matrix_Switchers directory and an “Extron Electronics\Matrix Switchers” group folder. It installs the following four programs:

- MATRIX Switcher+ Control Program
- MATRIX Switcher+ Help
- Uninstall MATRIX Switcher
- Check for Matrix Updates

First-time Connection Considerations

LAN port connection

If you connect your PC to the switcher via the LAN port, and it is the first time you have done so, you may change the default settings (IP address, subnet mask, and [optional] administrator name and password) on the controller (see “[Configuring for Network Communication](#)” for details.)

USB port connection

When you connect your PC to the DMS matrix switcher via the USB port for the first time, the Found New Hardware Wizard opens.



Activate the connected USB port for your device as follows:

NOTE: If you have not installed the latest Matrix Switchers Control Program, click **Cancel** and install the program. Reconnect the switcher to the Configuration port.

1. Select the **No, not this time** radio button and click **Next**. The wizard installs the necessary driver to access the switcher via the Configuration (USB) port (this may take a few minutes).

- On the next page that appears, select the **Install the software automatically** radio button and click **Next**. Follow the on-screen instructions. The wizard assigns the driver necessary to access the switcher to the connected Configuration (USB) port (this may take a few minutes).
- Click **Finish** to exit the wizard.

NOTE: You may need to repeat these steps if you subsequently connect the switcher to a different USB port on the same computer.

Starting the Program

- Click **Start > Programs > Extron Electronics > Matrix Switchers > MATRIX Switcher + Control Pgm.**

The Comm Port Selection window appears.

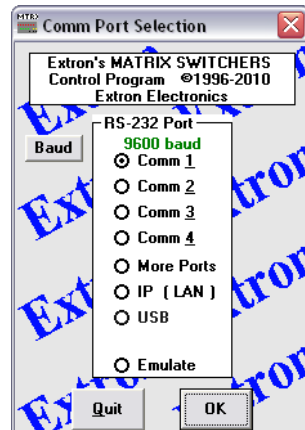


Figure 9. Comm Port selection Window

- Choose the comm (serial) port that is connected to the switcher, **USB**, or **IP [LAN]**.

NOTE: For a comm port, check the baud rate displayed in the Comm Port Selection window. If you need to change the baud rate, click the **Baud** button and double-click the desired baud rate.

9600 baud
19200 baud
38400 baud
115200 baud

Click **OK**.

If you selected a serial port or the USB port in step 2, the Matrix Switchers Control Program is ready for operation.

- If you selected **IP [LAN]** in step 2, the IP Connection window appears.

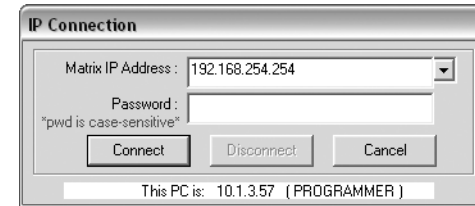


Figure 10. IP Connection Window

- Examine the Matrix IP Address field, which displays the last Matrix IP address entered.

If necessary, enter the correct IP address in the field.

NOTE: 192.168.254.254 is the factory-specified default value for this field.

- If the switcher is password-protected, enter the appropriate administrator or user password in the Password field.
- Click **Connect**. The Matrix Switchers Control Program is ready for operation.

Accessing the HTML Pages

Another way to configure and operate the switcher is via its factory-installed HTML pages, which are always available and cannot be erased or overwritten. The HTML pages that are pre-loaded on the switcher are accessible through its LAN port, connected via a LAN or WAN, using a web browser such as Microsoft® Internet Explorer® (see [item 4](#) on page 7, for connection information.)

Configuring for Network Communication

The first time you connect a PC to a switcher via its LAN port, you may need to temporarily change the IP settings of the PC in order to communicate with the controller. Then you must change the default settings of the controller (IP address, subnet mask, and [optional] administrator name and password) in order to use the unit on an intranet (LAN) or on the Internet. After you have set up the DMS matrix switcher for network communication, you can reset the PC to its original network configuration.

NOTE: The computer and the switcher must both be connected to the same subnet on a LAN (using a straight-through cable). Alternatively, you can use a crossover Ethernet cable to connect the controller directly to the computer.

Use the ARP command to configure the IP address as follows:

1. Obtain a valid IP address for the DMS matrix switcher from the network administrator.
2. Obtain the MAC address (UID #) of the switcher from the label on its rear panel. The MAC address should have this format: 00-05-A6-xx-xx-xx.
3. If the switcher has never been configured and is still set for factory defaults, go to step 4. If not, perform a mode 4 system reset. For detailed information on reset modes, see "Reset Operations" in the *DMS 1600 and DMS 3600 User Guide*.

NOTE: The switcher must be configured with the factory default IP address (192.168.254.254) before the ARP command is executed, as described below.

4. At the PC, access the MS-DOS® command prompt, then enter the `arp -s` command. Type in the desired new IP address for the unit (obtained in step 1) and the MAC address of the unit (from the rear panel of the unit). For example:
`arp -s 10.13.197.7 00-05-A6-03-69-B0` and then press <Enter>.

After receiving the `arp -s` command, the controller changes to the new address and starts responding to the ping requests, as described in step 5.

NOTE: You must ping the DMS matrix switcher as shown in step 5 for the IP address change to take place. The response should show the new IP address, as shown in the following figure.

5. Execute a ping command by entering ping followed by a space and the new IP address at the command prompt. For example:
`ping 10.13.197.7`

```
C:\>ping 10.13.197.7
```

Pinging 10.13.197.7 with 32 bytes of data:

```
Reply from 10.13.197.7: bytes=32 time<10ms TTL=128
Reply from 10.13.197.7: bytes=32 time<10ms TTL=128
Reply from 10.13.197.7: bytes=32 time<10ms TTL=128
Reply from 10.13.197.7: bytes=32 time<10ms TTL=128
```

Ping statistics for 10.13.197.7:

```
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

NOTE: You can reconnect using either Telnet or a web browser to verify that the update was successful.

6. After verifying that the IP address change was successful, enter and issue the "`arp -d`" command at the DOS prompt. For example:
`arp -d 10.13.197.7` removes 10.13.197.7 from the ARP table
or
`arp -d *` removes all static IP addresses from the ARP table.

Loading the Start-up Page

- NOTES:**
- If your Ethernet connection to the matrix switcher is unstable, try turning off the proxy server in your web browser. In Microsoft Internet Explorer, click **Tools > Internet Options > Connections > LAN Settings**, uncheck the **Use a proxy server...** box, and then click **OK**.
 - For details on operating the switcher via HTML pages, see the "HTML Operation" section in the *DMS 1600 and DMS 3600 User Guide*.

1. Start the web browser program.
2. Click in the Address field.
3. Enter the Matrix IP address in the Address field.

NOTE: 192.168.254.254 is the factory-specified default value for this field.

4. Press the keyboard <Enter> key. The switcher checks whether it is password-protected.

If the switcher is not password-protected, it checks and downloads the HTML start-up page. The switcher is ready for operation via HTML remote control.

If the switcher is password-protected, it downloads the Enter Network Password dialog box.



Figure 11. Enter Network Password Dialog Box

NOTE: A User name entry is not required.

5. Enter the appropriate administrator or user password in the Password field and click **OK**.
6. The switcher downloads the HTML start-up page. The switcher is ready for operation via HTML remote control.



Figure 12. Downloaded Start-up Page

Maintenance and Modifications

This section describes repairing and reconfiguring the DMS matrix switchers by replacing components. Topics that are covered include:

- Removing and Installing an I/O Board or Blank Panel
- Removing and Installing a Power Supply Module
- Removing and Installing a Fan

Removing and Installing an I/O Board or Blank Panel

Circuit boards can be added or removed to increase or decrease the I/O configuration (size) of the switcher.

- NOTES:**
- For proper cooling and air flow, boards or blank panels should be installed in all locations during normal switcher operations.
 - See "[A Note on I/O Boards](#)" in the "Installation" section to understand the different arrangement of connectors on the I/O boards.

Remove and replace an I/O board or blank panel as follows:

- NOTE:** The I/O boards are hot-swappable. You do not need to power down the switcher to remove an I/O board.

1. For an I/O board, disconnect any connected cables.
2. Rotate the left and right knurled knobs to completely loosen the captive screws (see [figure 13](#) on the next page).
3. Gently pull on the knurled knobs to loosen the board or panel from the backplane.
4. Slide the board or panel out of the chassis.

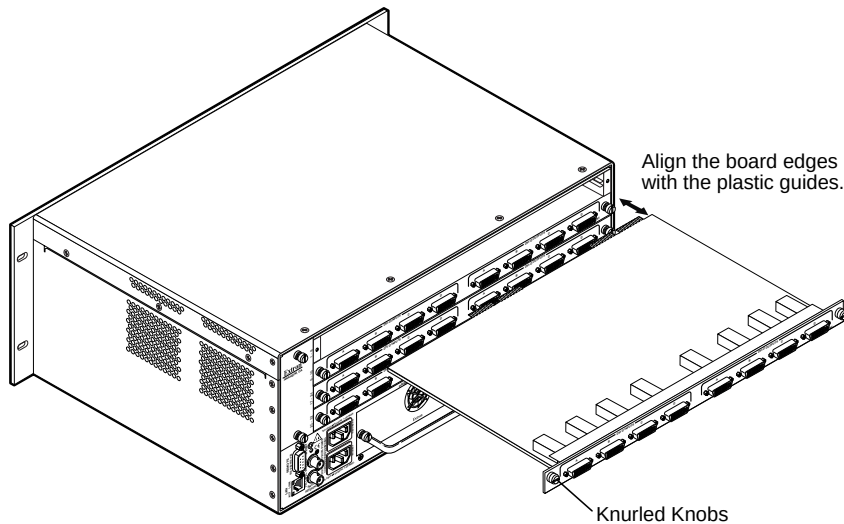


Figure 13. Remove and Install an I/O Board

CAUTION: Do not touch the electronic components or the connectors on the backplane or on the circuit boards without being electrically grounded. Handle circuit boards by their edges only. Electrostatic discharge can damage circuits, even if you cannot feel, see, or hear it.

5. Place the removed board on an anti-static surface or in an anti-static container.
6. **For an I/O board**, orient the board to be installed so that connector A (of either the input group of connectors or the output group of connectors) is on the left and connector D (of the same group of connectors) is on the right.
7. **For an I/O board**, align the board with the left and right chassis guides (above).
8. Gently slide the board or blank panel into the enclosure. For an I/O board, slide the board toward the front panel until it meets resistance.
9. Gently seat the board or panel in the backplane.
10. Tighten the left and right knurled knobs to lock the board or panel in place. Use a screwdriver to tighten the knurled knobs.

Removing and Installing a Power Supply Module

The two power supply modules (primary power supply and redundant power supply) are identical and hot-swappable. Each power supply module has a two-color LED, visible on the rear panel, that indicates the status of the power supply outputs. If the LED is lit green, the power supply is operating normally. If the LED is lit red, the supply has failed and should be replaced at the earliest opportunity. LEDs with identical meanings are also on the front panel.

CAUTION: The DMS matrix switchers use double pole/neutral fusing. Power must be disconnected before servicing internal components.

NOTE: The power supply modules are hot-swappable. You do not need to power down the switcher to install or remove either power supply module.

1. Rotate the left and right knurled knobs to completely loosen the captive screws (see figure 14).

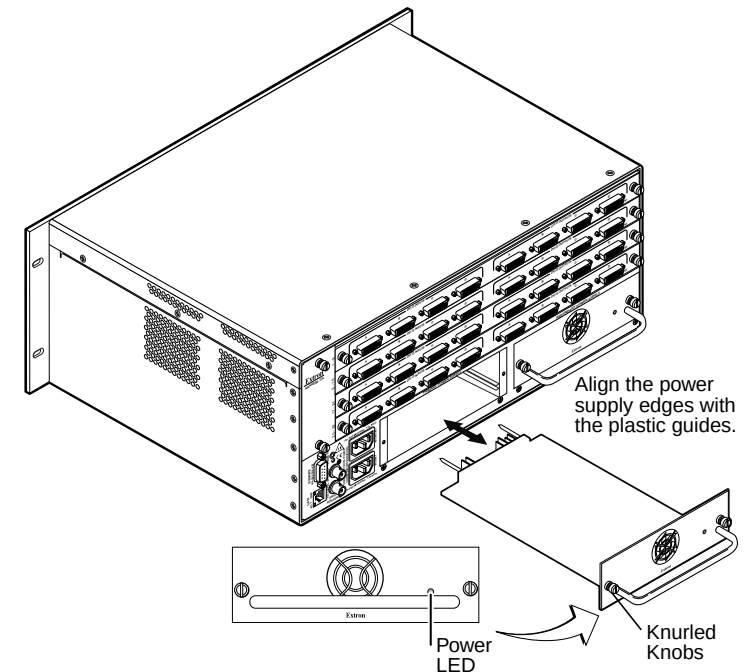


Figure 14. Remove and Install a Power Supply Module

2. Gently pull on the handle to loosen the power supply from the backplane.
3. Slide the power supply out of the chassis.
4. Orient the power supply module to be installed with the LED to the right.

5. Align the flanges on the power supply module with the left and right power supply guides.
6. Gently slide the power supply module into the enclosure until the power supply meets resistance.
7. Gently seat the power supply in the backplane.
8. Tighten the left and right knurled knobs to lock the power supply in place. Use a screwdriver to tighten the knurled knobs.

Removing and Installing a Fan

The DMS 1600 has a single fan module. The DMS 3600 has two identical fan modules. The fan modules are hot-swappable. If a fan fails, it should be replaced at the earliest opportunity.

NOTE: The fans modules are hot-swappable. Either fan can be removed or installed without powering down the switcher.

1. Remove and retain the two screws that secure the row identification plate (identifying the rows of the adjacent DVI input and output connectors) to the fan. Retain the plate.
2. Rotate the top and bottom knurled knobs to completely loosen the captive screws (see figure 15).

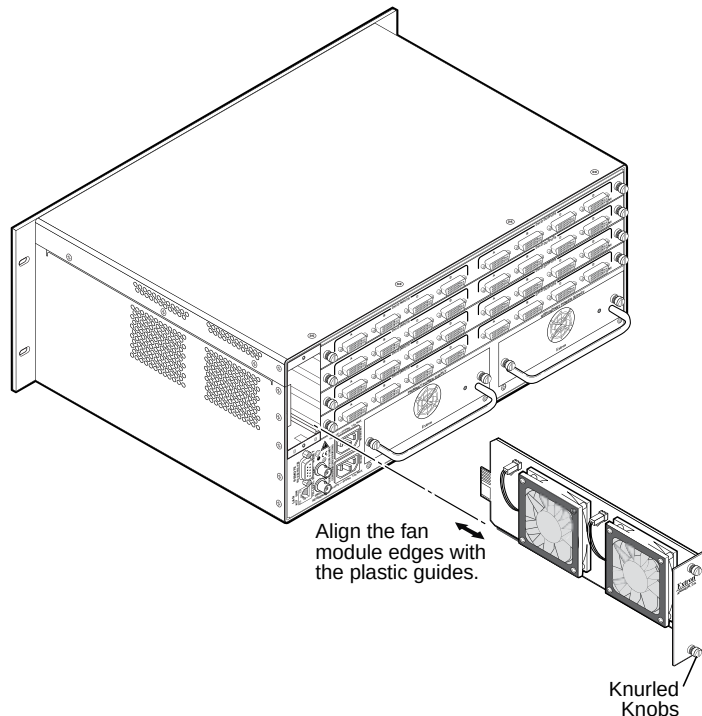


Figure 15. Remove and Install a Fan

3. Gently pull on the screws to loosen the fan from the backplane.
4. Slide the fan out of the chassis.
5. Orient the fan to be installed so that the printing on the back of the panel is right-side up.
6. Align the flanges on the fan with the top and bottom fan guides.
7. Gently slide the fan into the enclosure until the fan meets resistance.
8. Gently seat the fan in the backplane.
9. Tighten the top and bottom knurled knobs to lock the fan in place. Use a screwdriver to tighten the knurled knobs.
10. Secure the row identification plate to the fan.